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Conspiratorial cosmology—the case against the Universe

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ABSTRACT

Based on the cosmological results of the Planck Mission, we show that all parameters describing our Universe within the ΛCDM model can be constructed from a small set of numbers known from conspiracy theory. Our finding is confirmed by recent data from high energy particle physics. This clearly demonstrates that our Universe is a plot initiated an unknown interest group or lodge. We analyse possible scenarios for this conspiracy, and conclude that the belief in the existence of our Universe is an illusion, as previously assumed by ancient philosophers, 20th century science fiction authors and contemporary film makers.

Key words. cosmology: general – cosmology: parameters – conspiracy theory: numbers

1. Introduction

Since the dawn of culture, the believe in creation has been the foundation of all cosmology (Rigveda X,129, before 1000 BC; Genesis 1:1, 950-400 BC; Lemaître, 1931), although some funny ideas about eternity (Aristotle, approx. 350BC) temporarily confused the minds of scientists (e.g., Hoyle, 1948; Bondi & Gold, 1948). Started eventually in 1964, a joint venture of telephone engineers and astrophysicists brought us the insight that a signature of this creation is still around us (Penzias & Wilson, 1965; Dicke et al., 1965). It took us another few decades to learn that this signal contains useful information *when* exactly and *how* creation has happened (Smoot et al., 1992; Bennett et al., 2012). The quest to find these answers culminated in the Planck Mission (Tauber et al., 2010; Planck Collaboration, 2013a), which recently released its results.

A question never asked in this context, neither by modern cosmology nor by its ancestors, is *why* the Universe was created. *Who* has an interest in its existence? In all other aspects of life, preliminary answers to such kind of questions are given by conspiracy theory, i.e., the assumption that everything which happens is controlled by an interest group or lodge, whose actions are generally obscure to normal creatures and manifest themselves as mysterious "forces" (Wilson & Shea, 1975, and countless other work). This raises the question whether a similar logic can be applied to the Universe as a whole.

A common element of cosmology and conspiracy theory is their affection to numbers. In modern cosmology, the entire knowledge about the Universe is cast into a set of numbers called the *cosmological parameters*, and revealing these numbers has become the main driving force of experimental cosmology. Conspiracy theory, in turn, assumes that at least some members of the lodge have a favour for numbers, and have fun in continuing to communicate them to us through shamans, mathematicians, lunatics, science fiction authors, potheads, and other initiates.

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In this paper, we explore the potential conspiratorial origin of our Universe by showing how almost all relevant fundamental parameters can be constructed by simple mathematical operations from a small set of conspiratorial numbers. As orders of magnitude and units generally play no role in conspiracy theory, we introduce the notation $X \cong C\langle[\text{unit}]\rangle$ for a conspiratorial number C being consistent with a physical quantity X measured in the given "unit" within the 2σ error range, after performing an arbitrary decimal shift to C; for dimensionless quantities, "[unit]" is omitted. In case errors are not known or for other cases of less accurate comparisons, we use the notation $X \approxeq C\langle[\text{unit}]\rangle$. We refer to these relations as *conspiratorial correspondence* in the narrow and wide sense, respectively. We adopt the usual convention to refer to the Conspirators by using upper-case pronouns.

2. Conspiratorial numbers

2.1. 23

The smallest prime number which is the sum of three consecutive prime numbers is $23 = 5 + 7 + 11$. It is also the only integer number bracketed by π^e and e^π (Scott, priv. comm.).[1] It is the foremost number of conspiracy theory. According to tradition, the origin of the 23-enigma is attributed to the US author and pop icon William S. Burroughs (see, e.g., Wilson, 1977b). It has been spread through standard work of conspiracy theory (Wilson & Shea, 1975; Wilson, 1977a), and nowadays fills countless blogs and web-pages of paranoid conspiracy fans. It is therefore obvious that no number-based conspiracy theory can be constructed without this number.

[1] While π is a conspiratorial number beyond doubt (see Sect 2.3), the role of the Euler number e in conspiracy theory is still under debate and subject to intense research. It is therefore not considered in this paper.

base parameter		≅	σ/Π	N_c
Physical baryon density	$\omega_b \equiv \Omega_b h^2$	$23c$	$6.9\,10^{-3}$	11
Scaled physical matter density	$\Omega_m h^3$	c	$8.9\,10^{-4}$	11
Redefined acoustic scale measure	θ'_*	42	$3.4\,10^{-3}$	11
Thomson scattering optical depth due to reionization	τ	c	$4.8\,10^{-2}$	11
Scalar spectrum power law index	n_s	c	$4.7\,10^{-2}$	1
Log power of the primordial curvature perturbations	$\ln(10^{10}A_s)$	π	$5.5\,10^{-2}$	2

Table 1. Conspiratorial correspondence of modified Planck base parameters (see text). The parameters σ/Π and N_c are needed to determine the statistical significance of this finding (see Eq. 1).

2.2. 42

Ever since its proposal as "The Answer" by Adams (1979–1995), this number has entered a fixed place in the thinking of a whole generation of scientists. It connects scientific methodology, i.e., analysing numerical results without knowing which question has been asked; creation, as it turns out that our world was *built* to find that question; and conspiracy, as there was apparently some disagreement whether the creation of the Universe was good move (Adams, 1979–1995, Vol 2, Chap 1). Moreover, as independently noted by Knoche and Scott (both priv. comm.), 42 written to base 2 means 3 times on-off (i.e., 101010), which reveals again 23.

2.3. π

Traditionally associated to circles (Archimedes, fl. 250BC), the conspiratorial nature of π becomes obvious only when we consider that its distinguished geometrical meaning occurs only in flat space (Euclid, fl. 300BC), which has been turned out to be one gross misrepresentation: First we had to learn that the surface of Earth is not flat (Eratosthenes, fl. 200BC), then that space itself is curved in almost every place of interest (Einstein, 1915). Only very recently, it turned out that the abstract concept of empty space in our Universe is indeed Euclidian to high precision (Planck Collaboration, 2013a), which lets us conclude that some obviously inaugurated ancient Greeks knew something which the rest of us needed at least 23 centuries to figure out.

3. Conspiratorial cosmology

3.1. Conspiratorial values for physical parameters

Conspirators are malicious, but They are not subtle. We can therefore assume that the construction of the cosmological parameters out of the conspiratorial numbers has to follow simple mathematical operations, such as multiplying them with each other. Following this principle, we construct the conspiratorial values 23π, 42π besides the fundamental conspiratorial numbers 23, 42 and π, and introduce the superconspiratorial constant $c = 23 \times 42 = 966$.[2] Without considering high precision CMB data, these parameters seemed to suffice to represent the most fundamental parameters of the ΛCDM cosmology, as the dark energy density $\Omega_\Lambda \cong 23\pi$, baryon density $\Omega_b \cong 42$, dark matter density $\Omega_c \cong 23$, and Hubble constant $H_0 \cong 23\pi$ [km/s/Mpc] (Supernova Cosmology Project, 2008). Moreover, CMB data obtained by WMAP already showed that the primordial spectral index $n_s \cong c$ (Hinshaw et al., 2012).

Following the principle of complexification described by Adams (1979–1995, Vol 2, Intro), we have to expect that this cannot hold for measurements at higher precision, and the Planck results will require refinements in order to reveal their conspiratorial nature. Here we note that the natural conspiratorial symmetry $c \cong 1$ occurring for sufficiently large errors may break by refined measurements, so we expect c to be the correction factor needed to bring these measurements in line. Thus we allow all conspiratorial values to be multiplied with c, except c itself as squared superconspiracy is imbecilely unstable (Rachen and Gahlings, in preparation). This defines 11 conspiratorial values which we compare with the Planck results.

3.2. Comparison with Planck results

Following Planck Collaboration (2013b) we distinguish between *base parameters* directly determined from CMB maps, and *derived parameters* within the ΛCDM model. Close inspection reveals, however, that some of the base parameters have been badly chosen by Planck Collaboration (2013b), so we decide to replace $\omega_c = \Omega_c h^2$ by the much better constrained parameter $\Omega_m h^3$, and redefine the acoustic scale as $\theta'_* \equiv 100\theta_* - 1$ (for those who find this definition dubious we recall that They *are* malicious).

The result is shown in Table 1. We see that all base parameters chosen this way show conspiratorial correspondence in the narrow sense. To asses the statistical significance of this finding, we define for each parameter the quantity σ/Π, i.e., the ratio of the determined 1-σ error to its prior range given in Planck Collaboration (2013b), and note that the chance probability of a conspiratorial correspondence in the narrow sense is given for each parameter i by

$$p_i < 4N_c \frac{\sigma_i}{\Pi_i} \tag{1}$$

where N_c is the number of conspiratorial values in the prior range, and the inequality expresses that p_i may be overestimated due to non-considered overlaps of the error ranges around the conspiratorial values. For the total chance probability that the match shown in Table 1 is purely coincidental (i.e., non-conspiratorial) is then $p = \prod_i p_i < 1.5\,10^{-4}$, which clearly exceeds the conspiratorial confidence threshold of 23 decisigma.

We note that not all parameters contribute to this significance. For the optical depth τ the error bars are so large that essentially any possible value could have been interpreted as a conspiratorial match. For the more tightly constrained combination with the matter density perturbation power, however, we find $\sigma_8\, e^{-\tau} \approxeq 23\pi$. Efstathiou

[2] To avoid confusion, we note that in the physics literature c is occasionally used to denote the velocity of light.

derived parameter		$\cong$	$\approxeq$
Dark energy density divided by critical density today	Ω_Λ	$23\pi c$	23π
Matter density today decided by critical density	Ω_m	π	πc
Current expansion rate in km/s/Mpc	H_0	$23\pi c$	23π
Redshift at which the Universe is half reionized	$z_{\rm re}$	—	c,$42\pi c$
BAO distance ratio at $z = 0.57$	$r_{\rm drag}/D_V(0.57)$	23π	$23\pi c$

Table 2. Conspiratorial correspondence of Planck derived parameters (see text). For each parameters, the best and second best match among the possible conspiratorial values is shown. For $z_{\rm re}$ there is no correspondence in the narrow sense, but two in the wider sense.

(priv. comm.) pointed out that also $\sigma_8^2 \cong \pi/42$, but the significance of such more subtle correspondence needs further investigation. Eventually, Table 2 shows that a significant fraction of the derived ΛCDM parameters show conspiratorial correspondence, among them those which capture the highest public interest, like Ω_Λ and H_0. It should be obvious that this is not above board.

4. Discussion

4.1. Other fundamental parameters

Besides CMB physics, also high energy particle physics exhibits fundamental aspects of the Universe. Of course, we cannot expect that the myriads of particle masses or quantum numbers are represented by conspiratorial numbers—for sure They are not naïve. Rather, it seems that They hide their message only in the most fundamental principles, such as spontaneous symmetry breaking. Indeed, the Cabibbo parameter $\lambda = \sin\theta_c \cong 23c$ to high precision (Particle Data Group, 2012). The clearest hint of conspiracy in fundamental physics is given by the recent discovery of the Higgs particle at a mass $m_H \approxeq 42\pi c$ [GeV] (CERN Press Release, 2012). Clearly, this aspect deserves deeper investigation with a watchful eye.[3]

4.2. Previous work

Pioneering work on conspiratorial cosmology has been done by Scott & Frolop (2006), who noticed already that cosmological parameters exhibit some numerical correspondences. We confirm this finding by showing that conspiracy in cosmological parameters delivered by Planck is not homogeneous, but clusters around very few specific conspiratorial values (see Tables 1 and 2).

The work of Scott & Frolop was preceded by a seminal paper by Hsu & Zee (2006), who proposed that the CMB would be the ideal medium for the Creator to communicate a message to the inhabitants of His creation. Scott & Zibin (2005) showed that Her message would appear different to different observers, anticipating advertising methods currently explored by an incredibly large ($\sim 10^{100}$) internet company.

It is mandatory in this context to mention also the important progress in modern creation theories (e.g., Johnson, 1990; Dembski, 1998, and their followers). Using a methodology very similar to ours, they try to deliver evidence that the Universe was made by "Intelligent Design". Our results confirm the latter of these two assumptions.

[3] We note in this context that the Higgs field was proposed in 1964 (Higgs, 1964a,b).

4.3. Plot scenarios

There are two main scenarios for a conspiratorial creation of our Universe.

The first scenario is that our universe was physically created by Them, potentially in a collider experiment. As the time scales involved are quite large, it would be questionable whether They still follow the progress of Their experiment. It is conceivable, however, that their life time scales are significantly different from ours, and such terrible miscalculation of scale has readily been reported (Adams, 1979–1995, Vol 1, Chap 31). In this case, they may indeed still be there and potentially establish contact with us. The science fiction literature has conceived several ways to do this, e.g., by sending construction plans for transport machines on the frequency $HI \times \pi$ to the VLA (Sagan, 1985), or by hiding black slabs on the moon, which of course must have the dimensions π:23:42 (and not 1:4:9 as wrongly predicted by Clarke 1968).[4]

A second, in our view more likely scenario is that there is no "Universe" in the regular sense, which we could observe. The general idea that reality might be an illusion is not exactly new (e.g., Buddha, fl. 500BC; Plato, approx. 370BC), but it took until 1964 that this was cast into a language understandable to the technical-scientific society through a novel in which the protagonist discovers that our world is just a computer simulation (Galouye, 1964). Probably this novel was an pre-release violating Their publication policy, as They managed to prevent a wide spread of the idea by keeping the novel and an early TV adaptation[5] largely unsuccessful.[6] An policy change, however, seemed to have the intent to prepare us for the discovery now made. First, a group of French philosophers (Derrida, 1967; Foucault, 1969; Lyotard, 1979; Baudrillard, 1981, et d'autres) made denial of reality the mainstream of intellectual thinking in vitually all areas (e.g, Butler, 1990, 1993; May, 1994). Second, starting at end of the last millennium the US film industry hammered the idea into the minds of the general public by a series of action movies, the most famous one recalling a well-known rectangular scheme of numbers. Eventually, the idea entered ostensibly non-fictional science through a search for signatures of the lattice spacing used in the simulation of our Universe in the spectrum of ultra-high energy cosmic rays (Beane et al., 2012).

An appealing aspect of the latter scenario is that it is much easier, even likely that They keep permanent con-

[4] We note that the idea to this famous science fiction story was born at a meeting between Arthur C. Clarke and Stanley Kubrick which took place on April 23, 1964 (Clarke, 1990).

[5] Welt am Draht, German TV screenplay directed by Rainer Werner Fassbinder, 1973.

[6] Moreover, both the author of the novel and the director of the TV screenplay were expelled from the simulation within a dozen years after their respective pre-releases.

tact to us, either through "Contact Units" or by direct projection of themselves into our world (Galouye, 1964). This would explain why and how the conspiratorial numbers have been repeatedly brought to our attention, and we would expect that most of the people named in the reference list of this paper in fact belong to Them.

4.4. The end of the World

If our Universe is an experiment, it is legitimate to ask when it is expected to be finished, in particular in view to future plans or wishes we might have (like "I always wanted to see Norway"). In the first scenario, cosmological models seem to give us little constraints on this, although we cannot exclude that They are able to change ad-hoc some of the physical parameters governing our Universe, which could have dramatical consequences (Turner & Wilczek, 1982).

In the second scenario, the situation is much more worrying as terminating our "Universe" would not take Them more than pulling a plug. Apart from the fact that Doomsday may, in this case, be either totally unspectacular or completely weird, we may also consider the possibility that the dates of this event are somehow encoded in our consciousness. According to recent rumours we were informed about that date by a calendar (Sitler, 2006) attributed to a fictional culture They have implemented in our collective memory under the name "Maya".[7] As the predicted date, December 21, 2012, has passed without noticed effects, and error is inconceivable, we have to conclude that our Universe *did end* at this date, but meanwhile They received a funding extension and the simulation is restarted with all experiences about the temporary shut-off erased from our memory. This incontrovertible finding confirms us in our belief that the second scenario is the right one, and therefore it seems to be in our interest to continue providing Them with useful results.

5. Conclusions

Following the logic of conspiracy theory, we provided compelling evidence that our Universe was created by conspiracy. The belief in its—thus our—existence is herewith proven to be an illusion. Some open questions remain, for example, (a) why the distribution of applied conspiratorial values is inhomogeneous, (b) whether and how our Universe will change after this discovery, and (c) what did *really* happen in the year 1964? More data and improved models are expected to provide answers in about one year from now.

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[7] A well chosen name, as the Sanskrit word *māyā* means *illusion* and is used in this sense in the Buddhist literature.